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A JOURNAL OF HORTICULTURE LANDSCAPE ART AND FORESTRY

MARCH 4 1891.

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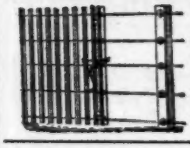

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Garden and Forest.

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The Western Arbor Vitæ. (Illustrated.)

The "Sleepy Grass."
By Dr. V. Havard, U. S. A.

The Genus Cycas. (Illustrated.)
By W. Watson.

New Orchids.
By R. A. Rolfe.

The paper will contain an illustration of Thuya gigantea from a photograph, and a figure of Cycas pectinata.

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The True Function of City Parks.

THE *Atlantic Monthly* for February contains an article by Mr. Alpheus Hyatt entitled "The Next Stage in the Development of Public Parks." What is interesting and valuable in this paper is a plea for the establishment in cities of more museums and a sketch of the principles on which collections should be made and arranged so as to serve the highest practical purpose. Mr. Hyatt urges that at our present stage of civilization collections of the varied forms of animal and vegetable life are as necessary as are public libraries and universities. We have learned that the highest education in the natural sciences is not acquired from books—that is, by a study of what other people have recorded—but by original investigation of the objects themselves; and public museums and gardens could aid in this direction by supplying natural objects for the use both of teachers and pupils just as libraries furnish books for those who wish to read. A museum, according to this view, is not a place of amusement merely—a collection of natural curiosities or rarities to excite the wonder of the ignorant—but a source of constant and adequate supply of objects for investigation by persons who are engaged in serious study. A zoölogical garden should not be a menagerie for the sole display of animals which are large or strange, but should include creatures of humbler structure, creatures which are small indeed, but whose functions in the economy of nature are of the highest importance to man and his physical surroundings. This means that we should have insectaries, where the various transformations of insect life could be observed; aquaria for the exhibition of marine animals and plants and sea birds, and fresh water aquaria for the fish and other inhabitants of inland lakes and rivers, together with such plants as grow in or near the water.

Of special significance are Mr. Hyatt's ideas with regard to grouping the animals in zoölogical collections according to the laws of geographical distribution as well as to those of specific relationship, and of supplying "a proper representation of the flora of each great area or country in the shape of some characteristic trees and flowers," in order to furnish the animals with appropriate surroundings "and give scientific and artistic completeness to these illustrations of the fauna." But, perhaps, the most novel of his suggestions is that, in addition to objects of study, teachers should be provided, who would do more than a printed guide-book in pointing out and naming and describing the interesting forms in any collection. No catalogue can ever keep pace with living and growing collections, and its pages are never large enough to answer the inquiries which every visitor is eager to make. Mr. Hyatt, therefore, would substitute for the catalogue educated men, who would be present not only to satisfy all reasonable curiosity, but to awaken interest, and, at the same time, give instruction that would be of permanent benefit.

All this is very attractive, and not impracticable. But when Mr. Hyatt declares that a public park does not fulfill its highest mission until it develops into a vast and multiform museum for popular instruction, he plainly ignores the specific purpose for which pleasure-grounds like Central Park, for example, have been created. Indeed, one may read Mr. Hyatt's article attentively and fail to discover whether he has ever cared to inform himself precisely what that purpose is. The fact is that in popular language there is no well-defined group of ideas suggested by the word park and it is applied to areas of ground which are used for the most varied and incongruous purposes. To one man it may mean a base-ball field; to another a military parade-ground; to a third a place where racehorses are used to facilitate gambling. Indeed, the danger of assaults upon the integrity of city parks is constant because of the lack of clear popular conception of their true functions, and they never will be safe from attacks until their primary purpose is universally understood, and until this purpose is admitted to be of sufficient importance to justify their existence and maintenance.

We have some hesitation about stating elementary principles with which our readers are already familiar, but there seems to be need of repeating pretty frequently that a park, such as is now under consideration, should be primarily and essentially a rural retreat—a place which will enable the people of a city to visit the country without leaving the town—and that its highest purpose is not to furnish instruction nor pure air nor a place for exercise on foot or on horseback, but to furnish that relief and repose of mind which natural scenery brings to those who are wearied by city sights and sounds. We need not inquire why this is so, but the fact is universally known and recognized that rural scenery has an intrinsic value in enabling us to resist successfully the wearing influences of town life and to recover the mental energy thus wasted. Every one is more or less susceptible to the charms of scenery, and a city park has a greater or less value for a city population, according to the degree in which this poetic charm of scenery is preserved and developed. Of course, a park designed and constructed with such a leading motive will not fail to furnish pure air and a field for exercise and opportunity for study, while if it is designed primarily with reference to any of these subordinate uses its highest purpose will not be reached.

It is true that the highest authorities on these subjects have made in some parks provision for boating, for tennis, for skating, for music, for children's playhouses and the like, but wherever such introductions have been successful they have been incidental and subordinate to the controlling motive of the park which has been steadily kept in view. A botanical garden, a zoölogical garden or an aquarium might well be placed in grounds adjoining a park, but separated from it so as to avoid any tendency to combine the ideas of a park and a museum, for the object of a museum and the object of a park are utterly distinct, and it is no more possible for a park to develop into a museum than it is for a library to develop into a cathedral.

Unless we hold fast to these primary truths our parks may be changed into places for miscellaneous out-door sport and recreation; they may afford the advantages of speed-roads for the owners of fast horses or spacious promenades where fashion may display its bravery and equipage, or, in accordance with Mr. Hyatt's idea, they may be "placed in correlation with the educational systems" of our cities by offering a home for thronging colonies of vertebrate and invertebrate animals besides vast collections of stuffed and dried curiosities, with all their vegetation ticketed and labeled, and trained lecturers discoursing on biology at convenient intervals. Public grounds prepared on any of these plans would no doubt be of great value to any city, but they would not be parks, nor serve the use of parks. Neither recreation, in the specific sense of amusement, nor education, even under its most attractive guise, but refreshment, pure and simple, for body and mind is the primary office of the public park. And nowhere should this fact be insisted upon more strenuously than in eager American communities where there is little inclination to give either mind or body their needed quota of peaceful, unambitious hours.

Recent Botanical Discoveries in China and Eastern Burma.—III.

Herbaceous Plants.—The herbaceous element in General Collett's collection of plants from the southern Shan Hills is not less interesting botanically than the shrubs and trees, and there are many novelties sufficiently ornamental to engage the attention of the horticulturist, and a few are exceptionally beautiful or singular plants. Taking them in systematic order, the first demanding notice is a species of Balsam (*Impatiens ecalcarata*), a species so strongly resembling the pretty *Impatiens Chinensis* as to be taken for it at the first glance; but, as the specific name denotes, the flowers are spurless. With this exception, it is so like the species named, in the dried state, at least, as to suggest its being a morphological variation of it. Yet among the very numerous specimens in the Kew Herbarium we detected none in which the spur was wanting or modified. It is a slender, almost unbranched, annual, a foot to two feet high, with narrow, opposite, more or less toothed leaves, whitish beneath, and solitary, axillary flowers on slender stalks. The color is not stated, but they are probably white or rose. *Impatiens Chinensis* itself deserves a word in this place, as it is certainly a most elegant plant, the flowers varying in the wild state from deep purple to a soft rose, and there is also a white variety. Although introduced into English gardens as long ago as 1824 it is now rarely seen. *Impatiens fasciculata* (*Botanical Magazine*, *t.* 4631) is a pale variety of this species, and *I. setacea* (Hooker's "Exotic Flora," *t.* 137) is another variety, having beautiful rose-purple flowers.

The herbaceous *Leguminosæ* from the Shan Hills offer little that is specially interesting from a purely horticultural standpoint, though there are several remarkable novelties. *Crotalaria perpusilla* is a miniature representative of its genus; *Neocollettia gracilis* is a singular creeping plant with minute flowers, belonging to a small group having one-seeded pods; and *Phylacium majus* is a fine new species of a previously monotypic genus from the Malay archipelago.

The herbaceous *Compositæ*, again, are few of them ornamental. *Inula crassifolia* is one of the most striking, having thick, almost fleshy, leaves, and large yellow flower-heads. This plant was collected in two very different conditions, though all the specimens were in the same stage of development. In one set they are thickly clothed with long, spreading hairs; in another set they are quite glabrous, so that at first sight they would be taken for distinct species, but the plants are probably all hairy at first, and the hairs early deciduous.

Notonia crassissima is a shrubby member of this order which I omitted to mention before. It has thick fleshy branches, resembling some of the Euphorbias, such as *E. neriifolia*, and long-stalked, showy yellow flower-heads, and it grows erect or trails over rocks.

About half a dozen different *Campanulaceæ* were collected, including several very pretty things, notably the elegant little twiner *Codonopsis convolvulacea*, previously only known from the contiguous province of Yun-nan, in China. General Collett describes it as common all over the plateau, creeping among grasses and twining around their culms until it reaches air and sunlight, when it produces its beautiful, dark blue, Convolvulus-like flowers. One species of the highly ornamental, mainly east Asiatic, genus Adenophora was collected. It is also common in the Khasya Mountains, but had not hitherto been referred to this genus.

Primula Forbesii is a pretty species, originally and recently described by Mr. Franchet from Yun-nan specimens. With one or two other Chinese species, it forms a new section of the genus of annual duration, and intermediate in character between Primula and Androsace. It is a very floriferous plant, with an almost flat rosette of thin leaves and very slender, erect scape, bearing from one to three or more tiers of small flowers similar to those of the Himalayan *P. floribunda*. It grows abundantly in almost all damp localities throughout the Shan States, being equally at home in the shady depths of the forest and in the ridges raised to divide irrigated rice-fields; and it was found in flower in some situation or other in every month of the year.

Among Asclepiads, a very dwarf, tuberous-rooted Ceropegia deserves notice. The flower-stems rise only four or five inches above the ground, while the curiously constructed flowers are themselves two inches long. *Brachystelma edulis* is an allied plant of even smaller dimensions with small rotate flowers. It is common on the sandy plains of Upper Burma, and its fleshy tubers are collected and sold in the bazaars as an article of food; but their flavor is not agreeable to a European palate.

There are two new species of the section Ophelia of Swertia, neither more nor less pretty than most of those previously described of this elegant genus.

Specially conspicuous and beautiful among the herbaceous plants on the uplands are various *Convolvulaceæ*, especially the genus Ipomæa, of which sixteen species were collected, including two very ornamental new ones. *Ipomæa nana* is a dwarf species almost concealed by the grasses among which it usually grows. From the woody root-stocks spring erect stems from six inches to a foot high, bearing very hairy, undivided leaves, and large, axillary, solitary flowers of a rich deep purple. *Ipomæa Popahensis*, the other new species, has very similar flowers and foliage, but it has weak stems that twine around grasses and other plants. It inhabits the isolated Mount Popah, which rises to an altitude of 5,000 feet in the plain of Upper Burma.

There is nothing ornamental among the herbaceous *Scrophularineæ*, and the solitary new Gesnerad has inconspicuous flowers. *Acanthaceæ* are more numerous, and some of them very pretty, notably among the new ones *Strobilanthes connatus*, found in great abundance in the dry forest-tract at 2,000 feet. The *Labiatæ* are numerously represented, and many of them are ornamental, but all of them were previously known. Prominent among them are *Orthosiphon staminens*, *Colebrookia oppositifolia*, *Leucoscephum canum*, and various species of Plectranthus, Elsholtzia, Scutellaria and Coleus. But the most ornamental of all is the previously little known *Colquhounia elegans*, which General Collett specially signalizes as worthy of cultivation. It is an erect shrub, eight to ten feet high, with ample foliage and dense axillary clusters of showy flowers in the way of a Leonurus. As a species it is near *C. coccinea*, figured in the *Botanical Magazine* (*t.* 4514). Two varieties were collected, one having dark red and the other salmon-colored flowers. A second and almost equally beautiful species, *C. vestita*, was less common, though it inhabits the mountains of northern India from Assam westward to Kumaon. Orchids were not numerous, only twenty-two species having been collected, though of these five are accounted new, and two of these are exceedingly distinct, curious and beautiful. A word first respecting the old ones, which included *Dendrobium lituiflorum*, *D. infundibulum*, *D. fimbriatum*, *D. capillipes* and *D. heterocarpum*, better known as *D. aureum*. Also among them were *Vanda cærulescens* and *Cypripedium concolor*, var. *Godefroyæ*.

The gem of the whole collection, perhaps, including the big Rose and the big Honeysuckle, is an Orchid, which I have named after its discoverer. It is *Cirrhopetalum Collettii*, the finest species of the genus, and most nearly allied to *C. ornatissimum*, figured in Warner's "Orchid Album," plate 369, but having dark purple flowers, with exceedingly slender lateral sepals about five inches long. These long, tail-like sepals are wafted about by the slightest breath of air. But, what is more curious, the comparatively small upper sepal and the two lateral petals are furnished on their margins with small, extremely delicate, highly mobile appendages resembling tiny banners and streamlets, which "wriggle about in a very odd manner." Amateurs will be glad to know that there is a good healthy plant of this attractive novelty growing at Kew.

The only other new Orchid I have to mention is *Bulbophyllum comosum*, which has a bottle-brush-like inflorescence of

small, pleasantly fragrant flowers borne on a slender scape. It is nearest *B. hirtum*, but neither the pseudo-bulbs nor the leaves are known. The plant was common, and the flowers, which are highly prized by the Shan maidens for ornamenting their hair, were sold in the bazaars, so that General Collett thought it must be known in Europe and was satisfied with bringing away two or three inflorescences.

A new Lily (*Lilium Bakerianum*) may close my remarks on this collection. It is intermediate in character between *L. Dahuricum* and *L. Japonicum*.

Doubtless, a country so rich in ornamental novelties as the Shan States will soon be explored by the collectors of some of our nurserymen.

Kew. *W. Botting Hemsley.*

The Chollas.

ONE of the most characteristic features in the landscape of southern California, especially in the region of the coast, is the extensive, impenetrable thickets of a cylindrical species of Cactus, familiar to all under the Mexican name, *Chollas*. The common Cholla in the vicinity of San Diego is *Opuntia prolifera*, Engelm., which grows abundantly on arid hills or mesas, especially on precipitous cañon-slopes bordering the usually dry water-courses. Chollas Valley, within the limits of the city of San Diego, received its name from the abundance of this plant. It grows from three to eight or ten feet in height, the stems from two to four, rarely six or seven, inches in diameter, and at the base forming a woody stem or trunk a foot or more in diameter.

The plant has never been utilized by stockmen for forage to my knowledge, as has been the case with some species of the genus, and it is quite a formidable task to clear land of this obnoxious plant. The short, stout spines are especially painful and tenacious after they have entered the flesh, and strangers in our land, human and brute, soon learn to give it a wide berth.

The flowers are an inch and a half in diameter, of a pretty wine or pomegranate purple, but are so well guarded by a multitude of formidable spines as to almost repel admiration. The fruit is proliferous, the seed almost invariably abortive.

Professor E. L. Greene records it from the Coronado and Guadalupe Islands, while T. S. Brandegee reports it from the Santa Catalina Island and as far southward as San Ignacio, in Lower California, where, he says, "the plants are sometimes almost spineless." I have not found it south of Todos Santos Bay, Lower California, but to the southward a very similar Cactus appears, identical in appearance, but very distinct in its fruit. I am, therefore, inclined to doubt whether the species which Mr. Brandegee reports or Professor Greene's Guadalupe Island plant, which he says is "smaller than in California," is the same as our San Diego species. The fruit is fleshy, spinous, very rarely containing even a single seed. The perfect seed is much larger than in the above-mentioned Mexican species.

Opuntia serpentina, Engelm., is a slenderer, usually prostrate, species, not gregarious nor so abundant as *O. prolifera*, producing yellowish green, purple-tinged flowers, followed by a dry many-seeded fruit, broadly umblicated and very spiny. The stems of this plant are seldom more than three or four feet long, an inch or two in diameter, and less woody in structure than the last species.

On the Colorado desert and eastward and southward through Arizona and New Mexico into old Mexico, the species and varieties of Chollas seem almost endless in number. The Indians in the mountains of San Diego County and in northern Lower California formerly planted them above the graves of their dead, and often a valley may be found dotted over with little groups of a slender, erect species (probably *O. Bernardina*, Engelm., ined.) planted by their hands.

One species (*O. Bigelovii*, Engelm.) has been sparingly utilized as fodder for cattle, after the spines had been burnt off, but all the species are very generally detested by all who are brought into intimate relations with them.

San Diego, Cal. *C. R. Orcutt.*

An Insect Pest of Cattleyas.

(*Isosoma orchidearum.*)

THIS insect does not appear as yet to have become common or generally known among collections in this country, and it is well that growers should be on their guard against it, because it seems to have become quite common in Europe, and is therefore liable to be introduced with any fresh importation of the plants.

The pest has appeared in more than one locality and in past years has not been unknown even in such carefully guarded collections as those of Mr. Ames, at North Easton, Massachusetts. A notice of its occurrence in another collection appears in *Insect Life*, vol. ii. (1890).

About two years ago, Dr. C. G. Weld, of Brookline, Massachusetts, imported a lot of Cattleyas from England which at first appeared to start into good healthy growth, but soon proved to be badly infested by this so-called "orchid-fly." The young buds or pseudo-bulbs which would eventually produce the flowering-spikes were noticed to become checked in their development, and upon cutting them open numerous little maggots or larvæ were found in cavities which they had eaten. Some pupæ were also found, and these, together with a few of the larvæ, afterward developed into small, black, four-winged flies.

From an investigation of the history of this insect it would appear that it was first publicly referred to by Professor J. O. Westwood at the meeting of the Royal Horticultural Society of February 16th, 1869, and a brief mention of the fact was given on page 196 of the *Gardeners' Chronicle* for the same year. On page 1230 of the same volume (1869) Professor Westwood gave a slight sketch and a brief notice of the insect, for which he proposed the name of *Isosoma orchidearum*. It is more fully figured and is technically described by the same author in the *Transactions of the Entomological Society of London* for 1882, pp. 322–324, pl. xiii.; and occasional brief notices of the pest have appeared in various foreign journals.

The perfect insect or fly is black, and has clear, shining, iridescent wings. The female is about one-seventh of an inch long, while the male is considerably smaller, being only about one-tenth of an inch in length. The head and thorax are rough and unpolished, the microscope showing them to be covered with tiny pits, from each of which little bristles or hairs project. The abdomen is black, smooth, polished and shining, and is without hairs except on the smaller last segments. The abdomen of the female is pointed and somewhat wedge-shaped beneath, while that of the male is small, being not more than half the length of the female abdomen and terminating bluntly or abruptly. Under the microscope the sexes may be readily separated by the antennæ. In the female most of the joints are about of the same size and shape, being symmetrical and connected together by inconspicuous pedicels; while the male antennæ are somewhat longer, the chief joints being longer and abruptly tapering to a slender neck or pedicel at the anterior ends, and lacking symmetry by being much more swollen on one side than on the other. The whorls of hairs or bristles are very much longer than on female antennæ.

It may be also worth noting that, counting the less distinct articulation in the terminal joints, the antennæ of the females are apparently ten-jointed, while in the males only nine divisions are noticeable.

The legs at the joints are red; the femora or thighs black; the tibiæ or middle portion yellowish or reddish, except on the hind pair, where they are blackish, and the feet (tarsi) are pale or dull white and tipped with minute dark claws. From the specimens collected the females appeared to greatly outnumber the males.

The female is provided with a long and extremely slender ovipositor, which it inserts into the tissue of the plant when depositing its eggs. When not in use, this ovipositor lies quite concealed by a groove and protecting sheaths, and only very careful manipulation with a slender-pointed instrument will bring it into view. In the figure the ovipositor and free portion of the sheaths are shown removed from their closely fitting position along the under side of the body.

The little footless grubs or maggots are white, and a sixth of an inch or less in length when fully grown.

Several of them may be found together, and they change to pupæ, and eventually to the winged state, within the cavity they have made in the Orchid, out of which they emerge through a small round hole in the side. Owing to their small size the flies are not easily detected after they escape, but they have been found resting on the under side of the leaves of the plants.

If this insect once gets a foothold in a collection it becomes a difficult one to exterminate. No means of trapping the flies are known, and the only apparent remedy has been the heroic one of cutting off and destroying all portions of the plants suspected of being infested. The young pseudo-bulbs usually become somewhat abnormally swollen if the maggots are at work within, although the indication is not always a certain one. To cut these young shoots off means the loss of flowers for a year.

It has been suggested that the larvæ could be killed in their burrows by prodding the infested shoots with a triangular dis-

secting pin (*Bull.*, p. 23; *Ann. Soc. Ent. de France*, 1888), and it seems that such experiments have been made in Paris, although the final results do not appear to have been published. Instead of making the numerous punctures which would be necessary in order to destroy all the larvæ, it might be worth while to try some experiments with insecticides. A drop of strong tobacco decoction, or of some oil, injected through a perforation, would destroy the insects reached; but the experiment should be carefully watched, both as to its effect on the plants and insects. Fumigating has been practiced in attempts to destroy the flies, but it is questionable whether fumes strong enough to kill these insects would not also injure the plants.

To keep a collection free from the pests every new importation should be thoroughly examined, and, if not known to be from uninfected establishments, they should be quarantined in a separate house for at least a year before placing them with unaffected plants.

The full history of this insect is not yet thoroughly known, and it is not at all certain that it does not live in other parts of the plants besides the new shoots or pseudo-bulbs. Similar-looking, and probably identical pupæ have been found singly in cavities in the fleshy leaves, the spot being indicated by its lighter color and a slight swelling on each side. It has also been reported that the insect makes pea-shaped swellings on the roots, but it has not been proved that this is the work of the same species.

Isosoma orchidearum, figured on page 103 from drawings by Mr. C. E. Faxon, was probably first imported into England with Cattleyas from South America. To the entomologist the insect is interesting, from the fact that it belongs to a group which was long considered to be purely parasitic upon other insects. It seems that a few European entomologists still maintain this theory; but the studies of Harris, Fitch, Walsh, Riley and others on the Isosomas of the wheat and other grasses in this country have clearly shown that insects of this genus, in many cases at least, subsist entirely on vegetable food and that they are capable of doing much injury to cultivated crops.

Arnold Arboretum. *J. G. Jack.*

Notes on North American Trees.—XXIV.

57. *Hypelate trifoliata.*—This small West Indian and Floridian tree has been known for nearly two hundred years, having been discovered in Jamaica by Sir Hans Sloane, who published an account of it in 1696 in his Catalogue of Jamaica Plants; and all subsequent writers on the flora of the Antilles have described it more or less accurately. The best account which has been published is found in Lunan's *Hortus Jamaicensis* (i., 387), where the structure of the seed is hinted at. Hypelate produces male and female flowers in separate panicles on the same plant, the males probably predominating, as fruit is rarely produced; and the seed has never been described in the two centuries this tree has been known to botanists. We have been able at last, however, to find a single perfectly developed fruit, and Mr. Faxon has succeeded in working out its structure for the plate in "The Silva of North America."

The flowers of Hypelate consist of a five-lobed calyx with ovate lobes imbricated in æstivation, slightly puberulous on the outer surface, ciliate along the margins and deciduous. The petals are rather longer than the calyx-lobes, imbricated in æstivation, concave, and rounded at the apex, with ciliate margins; they spread at maturity and are white. There are seven or eight stamens inserted on the margin and between the lobes of the annular fleshy disk; the filaments are filiform, as long as the petals in the sterile flower, and shorter in the fertile flower; the anthers are oblong, attached on the back near the bottom with two cells spreading from above downward and opening longitudinally. The ovary is sessile on the disk, slightly three-lobed and contracted into a short, stout style, terminated by a large, declinate, obscurely three-lobed stigma; in the sterile flower it is reduced to a mere rudiment. There are two ovules in each cell borne on the middle of its inner angle, amphitropous and superposed, the upper ascending with the micropyle inferior, the lower pendulous with the micropyle superior. The pistil ripens into a small, black, one-celled drupe, crowned with the remnants of the persistent style, and supported on the persistent base of the calyx. The outer covering is very thin, although fleshy and rather juicy. The stone has very thick bony walls, and contains a single suspended seed developed from the lower ovule. The seed is destitute of albumen, with a thin, slightly wrinkled testa. The embryo is conduplicate, filling the cavity of the seed, with thin, foliaceous, irregularly folded cotyledons incumbent on a long radicle which points toward the hilum.

It appears from the character of the embryo that Hypelate must occupy an anomalous position among the genera of *Sapindaceæ*, and that it does not readily fall into any of the tribes into which the family has been divided by Bentham and Hooker in the "Genera Plantarum." It may perhaps best be placed at the end of *Sapindeæ*, which it serves to connect with the *Acerineæ*.

Another West Indian tree which occurs also in Florida has often been referred to Hypelate. This is the *Hypelate paniculata* of Cambessides, which was first referred by A. L. de Jussieu to *Melicocca*, and which much later was described independently by Macfadyen in his "Flora of Jamaica" as *Exothea oblongifolia*, his genus Exothea being established for this plant. Radlkofer has already taken up Macfadyen's genus Exothea in Durand's "Index Generum," and the structure of the fruit of Hypelate shows that his view is correct, and that these two Florida trees cannot remain in the same genera. The fruit of Exothea, unlike that of Hypelate, is baccate, with one perfect cell and the rudiments of the second, with thick dark purple flesh surrounding a large, solitary, oblong, suspended seed without albumen, and with a thin shining testa. The embryo fills the cavity of the seed with very thick, fleshy, plano-convex, slightly puberulous cotyledons, and a short, superior, uncinate radicle turned toward the hilum, and enclosed in a lateral cavity of the testa.

Our Florida tree should be known as *Exothea paniculata*, Radlkofer, instead of *Hypelate paniculata*, Cambessides.

Radlkofer (*Sitz. Acad. Münch.*, xx., 276) refers to Exothea as a second species, *E. Copallilo*. This is a plant discovered in southern Mexico many years ago by Schiede and Deppe (No. 1295), and merely noticed under its vernacular name, "Copallilo," in the enumeration of their plants published in 1831 by Schlechtendal in the sixth volume of *Linnæa*. According to Radlkofer, it is the *Retonia* species of Hemsley ("Bot. Biol. Am. Cent.," i., 213). Of this plant I have no knowledge beyond that gathered from the brief account inserted in Radlkofer's paper. *C. S. Sargent.*

New or Little Known Plants.

Lycium Chinense.

ALMOST every one who has lived in the country is familiar with the Matrimony Vine, with its weak, drooping stems, which fall to the ground unless supported, its pale gray-green foliage and purple flowers, which are borne in pairs from the axils of the leaves, and which, from their close contact side by side, give to this plant its familiar name. It is a species of Lycium, and is related to the Potato, the Tomato and the Solanum, as may be seen from the fruit, which is a small, bright red, oval berry, a good deal like that of some Solanums. It is a native of the Mediterranean region, and botanists call it sometimes *L. Europeum* and sometimes *L. vulgare*. Fifty years ago it was the custom in this country to plant a Matrimony Vine on an out-house or a fence whenever any attempt at all was made at gardening, and now, in some parts of the United States, this plant has become fairly naturalized.

Lycium is a genus with many species widely scattered through the temperate and warmer regions of the world, especially in the countries surrounding the Mediterranean basin, in China, and in the south-western parts of the United States and the adjacent territory of Mexico. There is another species which is an old inhabitant of European gardens and which is sometimes cultivated in this country.

Indeed, it is probable that it has been often confounded with the more common species. It is *Lycium Chinense*, a native of China, and in every way a more desirable plant than the first. It produces weak stems ten or twelve feet long which, unless they are attached to a support, lay prostrate on the ground and are never strong enough to support themselves. When trained, however, to a post or pillar or over an arbor, they assume an upright position and soon cover a large space. The branches develop stout lateral spur-like branchlets, and are more or less armed with stout spines. The leaves are bright green and are produced in great profusion; they are ovate, acute, an inch or two inches long, and remain fresh and bright until destroyed by severe freezing. This plant begins to flower in the late spring, and continues to produce its abundant flowers until growth is stopped by cold in the autumn. The flowers are rather larger than those of the Matrimony Vine, and are bright purple. The fruit, however, is its great beauty. This begins to ripen in early autumn and loads the branches until winter. It is oval or oblong, nearly an inch long, and bright scarlet. As it ripens at the time the plant is covered with green leaves, the contrast between the dark green foliage and the scarlet fruit is extremely beautiful, and there are very few hardy plants which can be grown in the climate of the northern states which are more beautiful in autumn or which are more desirable when fruit-effects are desired. It is perfectly hardy, it grows with the greatest rapidity, and can be readily propagated by division, as it suckers freely, or seedlings can be easily raised. It is not particular about soil, and is admirably suited to cover rough banks or rocks, where it may be allowed to grow without support, or to train over fences and other structures.

The character of the Chinese Lycium in fruit is shown by the illustration on page 102, made from a photograph of the end of a branch taken late in the autumn.

Cnicus Hillii.

PROBABLY the oldest botanical name of our eastern pasture Thistle is that of Muhlenberg, *Cnicus odoratus*. It is the *Circium pumilum*, Spenger, and *Cnicus pumilus*, Torrey. It is found from eastern Massachusetts to Delaware, and, while not of great size for a plant of the genus, is noticeable for its large, showy and fragrant flowers. While low it is stout, having large, sparingly branched roots of nearly even thickness. I have not found that any of these were hollow. The involucral scales are unmarked, or marked rarely with a light glutinous line; the anthers have very little acumination, and the tips of the pappus are mostly spatulate and ciliate.

In the year 1867 the late Elihu Hall collected, near Athens, Illinois, specimens of a Thistle which he referred to the above. This passed under the eye of Dr. Gray while making up his account of the genus for the Synoptical Flora. His note in my herbarium shows that he saw that it was different from the eastern plant, although he did not mention it in the Flora. Last year that observant botanist, the Rev. E. J. Hill, collected specimens on the sandy borders of Lake Michigan, and sent me excellent notes which seem to show that it is specifically distinct from the eastern plant. He had previously collected it at Cankakee, Illinois.

Just as these notes were in hand I have received Mr. Hitchcock's excellent Catalogue of the Plants of Ames, Iowa. A reference to page 505 will show that our plant extends to that point. It may reasonably be looked for in other localities.

From Mr. Hill's notes I have the impression that the western plant flowers some weeks earlier than the eastern one.

A comparison of the foregoing with the following description will serve to show the points of difference.

Cnicus Hillii: general appearance much as in *C. odoratus*, but the whole plant of smaller and more simple habit (fifteen to twenty inches high), rarely with more than one head; root perpendicular, fusiform, very slender and hollow (teste Hill) for two to six inches below the crown, then enlarging and tapering to the end, the whole eight to twelve inches long; leaves smaller, less spiny and less divided than in *C. odoratus;* scales of the involucre having a dark, glutinous line on the back; pappus usually slender-pointed, but occasionally a few with narrow spatulate tips; anthers more or less acuminate. From central Illinois to central Iowa.

Wilmington, Del. *William M. Canby.*

Foreign Correspondence.

London Letter.

THE EXHIBITION at the last meeting of the Royal Horticultural Society was of more than ordinary interest. Orchids, Chinese Primroses, Cyclamens and other plants were represented by exceptional specimens, both in regard to their cultural excellence and in their rarity and beauty. The winter we have had here has been all against good horticulture. No one would have been surprised if Mr. Cannell had declared that his Primulas had all gone wrong because of the fogs and darkness. But Mr. Cannell's marvelous exhibition of these plants last Tuesday told a very different tale. The "Swanley strain" of Primulas spoke for itself and spoke loudly through these plants, which were nearly two feet across, a foot high, and many of them with a dozen large many-flowered trusses of blooms as large as a florin, of extraordinary substance, the margins elegantly crisped and the colors superb. Some of the new varieties are almost scarlet, and Mr. Cannell declares that before long he will produce a Primula by the side of which the soldier's coat shall pale. Swanley Blue is a pale violet-flowered variety, and Swanley White is an excellent kind. The largest plants shown were two years old, and had flowered freely and also borne a crop of seeds in their first year. "All the result of common-sense cultivation, aided by our special manure, which is really capital stuff," says Mr. Cannell. But his common-sense treatment for Primulas is specially constructed houses, with hot-water pipes close to the roof as well as below the stages; careful ventilation in damp weather and very careful selection in the matter of varieties.

A group of Cypripediums, mostly hybrids, was exhibited by Messrs. Pitcher & Manda, of Swanley. Fifty-nine kinds were represented, and whilst the flowers of many of them were attractive the majority had no special charm beyond that of novelty; but to many collectors of Cypripediums novelty alone is asked for. Messrs. F. Sander & Co. showed a beautiful group of Orchids, among them a grand plant of *Odontoglossum Edwardii*, with two long, branched spikes of purplish flowers; *Oncidium Brunleesianum*, a pretty little species of the *O. sarcodes* section. When introduced and first flowered in England six years ago this plant produced a spike of no less than 150 flowers. Each flower is half an inch long and wide, the sepals primrose, the petals yellow barred with brown, whilst the three-lobed lip, which is folded behind and tongue-shaped in front, is colored deep maroon. A portion of the original plant was sold for 150 guineas. *Dendrobium Luchianum* and the pure white-flowered variety of *Coelogyne cristata*, known as Hololeuca, were also among the plants sent from St. Albans.

Phajus grandifolius, an old favorite in gardens, was shown exceptionally well by B. S. Williams & Son. It was in a twelve-inch pot and bore no less than fourteen spikes, averaging a yard in height and crowded with flowers. Old though this plant is, it does not occupy as prominent a place among popular Orchids as it merits, for, in addition to its massive beauty, it is as easy to grow as a Gladiolus and as certain to flower. *Cattleya amethystoglossa* (Prinzii) was shown with stems over a yard high and an enormous head of its large, richly spotted, amethyst-lipped flowers.

The following plants obtained certificates:

CATTLEYA TRIANÆ, var. PLUMOSA, remarkable in having a line of crimson down the middle of each of the rose-colored segments, and a lip colored rich maroon.

CYPRIPEDIUM CREON.—A hybrid raised by Messrs. Veitch from *C. œnanthum superbum* and *C. Harrisianum superbum.*

ODONTOGLOSSUM TRIUMPHANS, Whiteley's variety, a large and richly colored variety, much superior to the typical plant, handsome though this is.

IRIS DANFORDIÆ.—A dwarf plant with dull yellow flowers spotted with green. It was scarcely worth a floral certificate.

CHORIZEMA LOWII.—A pretty seminal variety of what is known in gardens as *C. varium splendens*, itself a good, useful greenhouse plant, but a long way inferior to its offspring, which was raised in Messrs. Low & Co.'s Enfield Nursery. As shown, it was one and a half feet high and formed a compact, many-branched elegant plant, every branch terminated by a raceme of richly colored flowers, half as large again as those of the parent and much brighter in color. This is a really pretty addition to a genus of greenhouse plants which are far less difficult to manage than the majority of hard-wooded plants, with which Chorizemas are classed.

HAMAMELIS ZUCCARINIANA is a dull-colored variety of the well-known Witch Hazel, *H. arborea*. The last-named is now a beautiful picture in one of the shrubberies at Kew.

Messrs. Veitch, who exhibited the plant certificated, also showed *H. arborea* in good condition.

Several of Mr. Cannell's Primulas obtained certificates.

The annual general meeting of the Society was held last Tuesday, when the statements made by the President, Sir Trevor Lawrence, with regard to the work and position of the Society gave unqualified satisfaction. With a balance in hand, a rapidly increasing constituency, and general enthusiasm among the leaders of the Society the prospect is exceptionally hopeful. Of the £40,000 required to build a hall and offices for the Society in London £27,000 has already been promised.

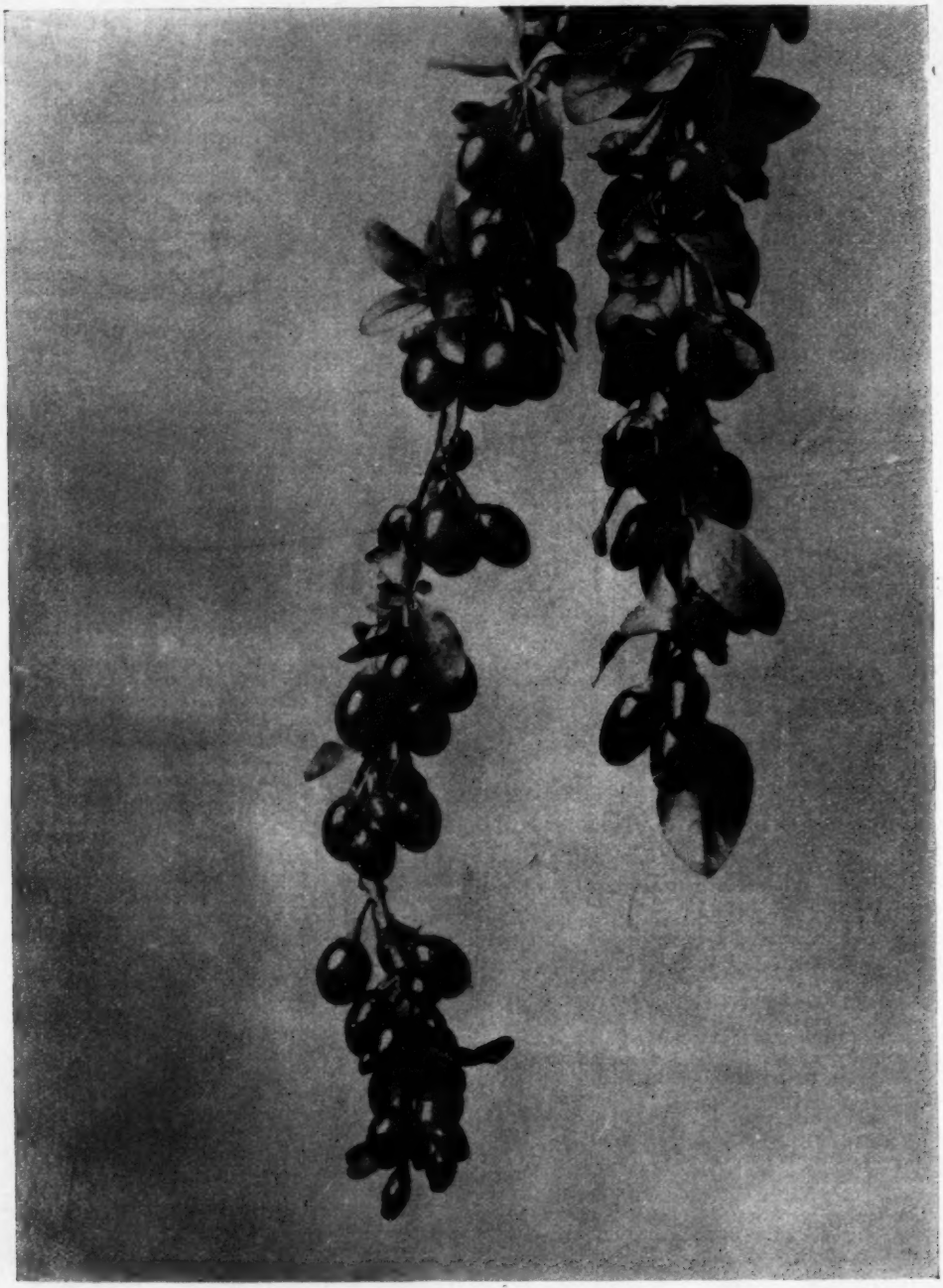

Fig. 20.—Lycium Chinense.—See page 100.

Disa longicornu.—Tubers of this interesting Orchid were sold at an auction sale in London last week. Although collected on Table Mountain, and described by Thunberg in 1773, it does not appear to have ever been cultivated or, at any rate, flowered in England. It has small Orchid-like tubers, a stem only two or three inches long clothed with about six leaves, which are oblong, acute, wavy, and three inches long. The scape is six inches long, one-flowered, and the flower is as large as that of *D. grandiflora*, but very different in form. The upper sepal forms a large trumpet-shaped, long-spurred, wide-mouthed hood, and the three lower segments are oblong and spreading. The whole flower suggests a Columbine, and is colored lilac-blue. According to Bolus, this species is found only on Table Mountain, where it grows "among moss or grass in clefts of steep rocks on the sides turned from the sun, where the water drips in early summer, at an altitude of 2,100 to 3,000 feet. It flowers in December and January." The

tubers of these beautiful Cape Disas cannot, unfortunately, be gathered except when the plants are in flower, and consequently before they are anything like mature. To lift any plant, even a Tulip or Hyacinth, when in flower, and at once dry it, would be to run the risk of losing it altogether, but in the case of such delicate plants as these tuberous-rooted Orchids the chances are a hundred to one against their recovering.

ANGRÆCUM FRAGRANS is attracting some attention now, a figure of it having been prepared for the *Botanical Magazine* from a plant in flower at Kew, and an account of its economic value will shortly appear in the *Kew Bulletin*. The leaves of this species are made into tea in the Island of Bourbon, where the plant is a native, and sold in Paris in boxes containing sufficient for thirty cups, at 1f. 25c. per box. Cigars are also made from the leaves in Mauritius. There are remarkably few Orchids of any economic value, the most important being Vanilla. The Angræcum is scarcely likely to become of much value commercially, as the plant is small and difficult to cultivate. It may be called a large edition of *A.* (*Mystacidium*) *filicorne*, the stems being short, the leaves oblong, three inches long, and the flowers in small racemes, each being an inch across, pure white and fragrant. The leaves when dry have an odor of vanilla.

London. *W. Watson.*

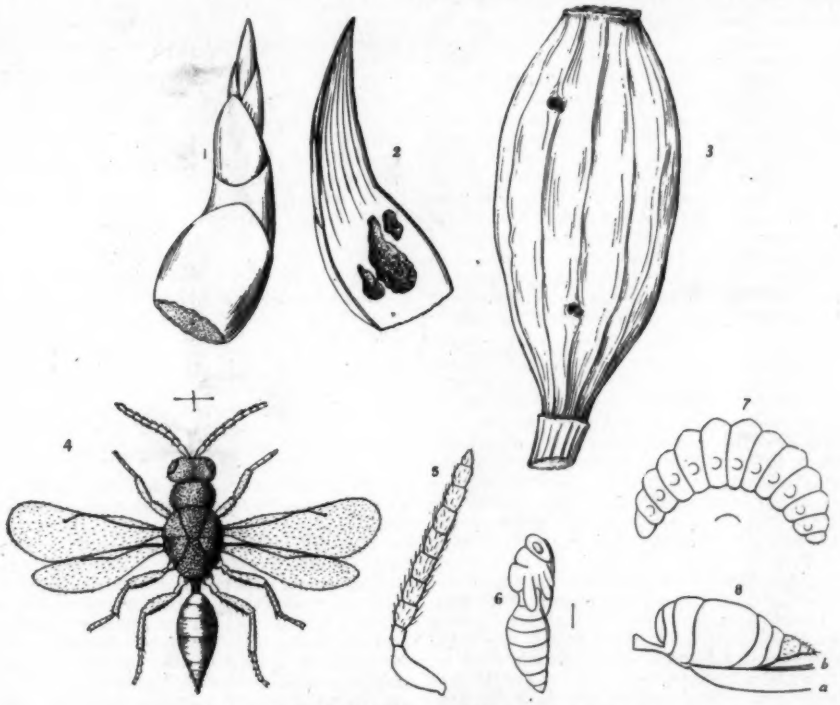

Fig. 21.—An Insect Pest (*Isosoma orchidearum*) —See page 99.

1. Infested bud or pseudo-bulb, abnormally swollen. 2. Section of bud showing cavities made by larvæ. 3. Old pseudo-bulb showing holes where flies have escaped. 4. Perfect insect, female (magnified). 5. Antenna of female (magnified). 6. Pupa (magnified). 7. Larva (magnified). 8. Abdomen of female showing ovipositor (*a*) and free part of sheaths (*b*) as they appear when drawn from their closely fitting place on the abdomen (magnified).

Cultural Department.

Iron-clad Seedlings.

WHILE there can be no question of the fact that the importation of varieties of fruit-trees from north-eastern Europe has been of advantage to the orchard-growers of the cold north, and has given them courage to persevere in their efforts to produce a supply of home-grown tree-fruits, it ought not to be forgotten that some of our most valuable iron-clads are native seedlings. Among these a certain number have sprung from these foreign varieties, and I have no doubt that many more valuable sorts will be thus produced. The Wealthy, for instance, is supposed to be a Siberian Crab seedling—perhaps, and even probably, crossed from the Fameuse. But the equally hardy Scott's Winter, which stands the cold and dry climate of Iowa and southern Minnesota rather better than the Wealthy, is unquestionably a pure product from our common apples of New England. McMahon's White, from Wisconsin, is probably of like origin; and yet, so far as I can decide, after a dozen years' trial, it is as hardy as Oldenburgh.

In growing seedlings with the hope of getting valuable market varieties of tree-fruits, adapted to our northern tier of states and the Canadian provinces, many more failures than successes are sure to be encountered, for we want not merely hardy trees, but meritorious fruits. Yet the mere obtaining of an iron-clad tree is something. Six or seven years ago I had sent to me fifty Pear-seedlings, grown from seeds of standard varieties of the hardier class, such as succeed on the Champlain Islands, near the Canada line. These seedlings were set out in a nursery row, with the object of budding upon them some of the iron-clad Russian Pears. They were left standing three or four years before budding; and each winter all but one of them were killed to the snow line. When the others were budded, close to the ground, with the Bessemianka Pear (which seems to be the hardiest of the Russians), this uninjured seedling was left; and two years later it was, with the budded Russians, transplanted into the orchard. It has now passed through several of the hardest winters on record in north-eastern Vermont without the slightest injury, growing strongly each season from its terminal buds; and it is now as sound and healthy as the Russians in the same row. The chances are, of course, that it will not produce a valuable fruit, but, waiting for a test of that, I still value it, and take pleasure in calling attention to it, as showing that iron-clad seedlings can be grown from the older race of Pears—none of which is iron-clad.

Appeals are frequently made to fruit-growers in the cold north to grow seedlings, and allow them to bear before grafting them. But it is a heavier task than many can be induced to attempt. Of a thousand such seedlings there is hardly a chance that more than half a dozen will be really iron-clad, and of such a possible half-dozen how many could we reasonably hope to bear valuable fruit? Maine is a state of seedling orchards, and has been so for a hundred years, yet Maine has not, among many excellent summer, fall and early winter apples, brought out a single long keeper of noticeable merit. Her commercial orchards are all planted with varieties originating outside of her boundaries. It is probably true that no expert has made a business of examining the seedling orchards of Maine with a view to the discovery of valuable kinds. If my own experience is any criterion, I should say that it would be very desirable to have such a search instituted either by the State Pomological

Society or the Horticultural Department of the State Agricultural College.

Within the limits of a single town in northern Vermont I have in the last twenty-five years come upon three useful iron-clad seedling winter Apples of the old strain, one of which (Scott's Winter) has become a standard sort, advertised by nearly all the great nurseries east and west.

But, with all this, I would not discourage the growing of seedlings. All of us can do a little in that way, and sometimes a great success comes with very little effort. The late Mr. Dudley, of Aroostook County, Maine, got from a few seeds of Oldenburgh, planted in his garden, a large, handsome, productive and very good winter apple of the type of its parent. This experiment (as well as that of Mr. Gideon in producing the Wealthy, and of Mr. Cady in producing the Northfield Beauty of Vermont) has practically demonstrated the error of the position taken by some writers that we cannot expect to get winter varieties from seeds of summer and fall apples. Undoubtedly much the larger number of seedlings will yield early fruit. The proportion of early to long-keeping varieties of apples the world over is very great, and naturally so, since all the wild types are of that sort, and keeping apples are the product of human perseverance in growing seedlings.

What I particularly wish to urge, without discouraging the propagation by seed, is a careful examination of the millions of seedlings already in existence upon farms all over the continent. Unless one goes about among the farmers, especially in what are called the "back towns," he will get very little idea of the immense number of these seedling fruit-trees. Seedlings cost nothing, and many of our poorer farmers, discouraged by the costly and generally worthless trees sold them by peddlers, plant none but seedling trees. The women of our back farms are particularly noted for this. They find a special interest in raising fruit-trees from seed, and thousands of them are quietly proud of growing in this way apples that they fondly believe are "better than any of your grafts." It is true that they are not very good judges on this point, but sometimes they will really surprise one with the excellence of the fruit of some favorite tree, the child of their tender care and patience. Few of these "fill the bill" entirely, yet we must remember that all of our best fruits were once obscure seedlings, many of them brought to notice only through what seemed a chapter of accidents.

Newport, Vt. *T. H. Hoskins.*

Dieffenbachias.

THIS very handsome genus of tropical Arads has now become quite common in cultivation, several valuable additions having been made in recent years, though several of the older species are also well worthy of more extended cultivation. It will, of course, be understood that these plants are not to be recommended for house decoration, as the majority of the Dieffenbachias would suffer from any long exposure to such conditions, but in a collection of stove plants they are remarkably attractive, and, being comparatively easy to grow, may be commended to amateur cultivators as well as to professionals. These plants prefer an open mixture consisting of nearly equal proportions of turfy loam and peat, a moderate quantity of dry cow-manure and some sand, and when given such a compost as this and a temperature of sixty-five to seventy degrees, in a house pretty well shaded, the result is usually satisfactory. They also require liberal watering and syringing when in full growth, so that red spider may not get a foothold, for if this be allowed the beauty of the foliage will soon be ruined. They are propagated by cuttings, which may be made from the tops or from single eyes of the old stem, the first being preferable if specimen plants are desired. A strong top will make a better furnished plant than an eye-cutting; but if quantity is the object, of course the latter is more desirable.

Among the older species *D. Baraquiniana* is very desirable when well grown. It has leaves about a foot in length and from four to six inches wide, these being bright green with a white midrib, and the surface of the leaf more or less spotted with white. The leaf-stalks are also pure white, which adds much to the beauty of the plant. *D. Baraquiniana* is one of the oldest species in cultivation, having been introduced from Brazil more than a quarter of a century ago.

D. Bausei is also a fine variety, and much more dwarf and compact in growth than the preceding. This is a garden hybrid that originated in Europe perhaps fifteen years ago, and has broad leaves that are frequently over a foot in length. Their ground color is yellowish green, and this is blotched with darker green and spotted with white. *D. Bausei* makes a charming little specimen, and is well adapted for cultivation where there is not sufficient space at command to grow the stronger kinds.

D. eburnea is another small-growing species that is worth a place. It has oblong-lanceolate leaves of light green color and much spotted with white. The foot-stalks are pale brown and somewhat marked with white, and the whole plant is graceful and elegant.

D. imperialis is one of the largest of the genus, and has very dark green leaves that are blotched with yellow. These leaves are two feet or more in length, rather stiff-looking, and they have much substance. This species enjoys strong heat, and is a remarkable plant when in good condition.

D. Bowmannii is also a strong grower, and, like the preceding, is a native of America. This fine species produces leaves about two feet in length and half that in width, the color being deep green, more or less blotched with irregular markings of very light green. *D. Bowmannii* was introduced about the same time as *D. Bausei*, and, like it, makes a handsome specimen.

D. Carderii is another attractive introduction of recent years. It is of compact habit and moderate growth, the leaves being dark green in ground color, but much marked with yellowish variegation. It is a native of Columbia.

D. Regina is one of the most striking of the newer Dieffenbachias, the leaves being nearly covered with yellowish white markings. It is of moderate growth, the stem being quite short-jointed and the petioles also rather short, thus giving it a compact habit.

D. nobilis is another good sort, and it produces rather longer leaves than the preceding. These are from eighteen inches to two feet long and about nine inches broad, and much blotched with white near the midrib. This species is quite strong in growth, and, like so many other members of this genus, is a native of Brazil.

D. Weirii is one of the prettiest dwarf species, the leaves being rather narrow and seldom more than one foot in length. Their ground color is dark green, varied with spots and blotches of yellowish green. This is really a pretty little plant, though but seldom seen of late years.

In addition to the species here briefly noted there are several others also worthy of general cultivation. The juice of the Dieffenbachias is more or less poisonous, and is likely to irritate any cut or sore on the hands to which it may be applied, and it is well to exercise proper care in handling the cuttings of these plants.

Holmesburg, Pa. *W. H. Taplin.*

Brunsvigias.

OF the several species of Brunsvigias I have cultivated but two—*B. Josephinæ* and *B. gigantea*, commonly known as *B. multiflora*.

The bulbs of both species are very large; that of my specimen of *B. Josephinæ* is about twelve inches long and five inches thick. Its color is blackish brown and its outer layers are soft to the touch. During the twenty years I have owned this bulb it has not increased in size as far as I can determine. During this time it has been repotted not more than four times, and for fifteen years has blossomed every year but one, it having declined to do so in 1887.

The treatment it has received has been as follows: It is potted in a compost of rotted sods, a little leaf-mould and a little sand in an eleven-inch pot. It passes the summer, from June to September, under a tree, and laid on its side to keep it dry. I do not generally begin to water it until the flower-stalk begins to push, generally the first week in September. When this occurs I place it in the greenhouse, and give it about a quart of water every day until the short days come. From November 10th to March 1st, once in three days is often enough to water it or any other bulb. The flower-stalk is ashy-purple, about an inch thick, and so very brittle that last fall when I lifted the pot suddenly it snapped off, and I had no flowers. If no such mischance occurs the great umbel of blossoms will be fully expanded in about two weeks from the time they begin to appear. In number they vary from thirty to fifty, each being at the end of a pedicel nine inches long, so that the entire flower-head has a diameter of a foot and a half. The individual blossoms are about three inches in length and two wide, of a very elegant shape and of a brownish crimson color. The whole plant is very striking and ornamental in appearance. As in most Amaryllids, the leaves follow the flowers; they attain a length of two feet, with a breadth of five inches.

During all these years no sign of an offset has appeared. Seeds are formed in abundance; they are as large as a small

pea, almost white and sprinkled with minute red dots. They are of the bulb-like appearance noticeable in those of Nerine and *Amaryllis Belladonna*, and, like those, are best sown on the surface of the soil. Those I have tried have germinated readily, but I threw them away as soon as my curiosity on that point was satisfied, for I do not believe that seedlings would attain a blossoming size in less than forty or fifty years. Burchell, in his account of the nearly allied *Ammocharis coranica*, which he found in thousands in Caffraria, declares that from a careful dissection of bulbs eight inches in diameter he does not believe that that size was attained in less than two hundred or three hundred years. *B. Josephinæ* first flowered in cultivation in the gardens of the Malmaison, and was named in honor of the Empress Josephine.

All that has been said of the cultivation of *B. Josephinæ* is applicable to *B. gigantea*. The bulbs of the latter species are almost spherical and light yellowish brown in color; the outer coats are very hard and stone-like and very brittle. The foliage is peculiar, each leaf being about fifteen inches long, very broad, and rounded at the end; shaped, indeed, much like a beaver's tail. The flowers resemble those of *B. Josephinæ* in form, and are produced every year; they are less numerous, and though much brighter in color, are less effective because they are greenish at the base.

Canton, Mass. *W. E. Endicott.*

Snowdrops.

GALANTHUS FOSTERI.—So prevalent is the idea that size is necessarily an element of beauty in a flower that the first view of this new Snowdrop is a disappointment. Herr Max Leichtlin considers this the King of Snowdrops, and thinks that under cultivation it will prove the finest of the family. The fine bulbs with which I was favored last fall were collected ones, and, of course, do not do the variety justice, but, from present appearances, they must improve very materially before they produce flowers to equal those of *G. Elwesi* in mere size. However, this is a beautiful variety of *G. latifolius*, with firm Scilla-like foliage, and sepals which seem scarcely as broad as those of good specimens of *G. Elwesi*. The perianth-segments are pure white, with a slight line of green under the notched edges and a dot of green at the base of each petal—a most charming interior.

GALANTHUS ELWESI.—This Snowdrop commenced blooming on a south border late in January, and its large but dainty flowers again proved the earliest harbingers of a new garden season. There is a special charm attached to this delicate flower which weather of the wildest does not discourage. The fiercest storms simply toss their beautiful blooms gracefully about, and they cheer one in this gloomy season with their look of contentment under most disheartening surroundings. I have noticed that this Asia Minor variety has been said to be sometimes of a rather delicate constitution, but I can see no indication of this in my border, which contains a few hundred bulbs collected in 1889. They are now in good condition, with flowers large and sepals mostly wide and of good, firm texture. Like most collected bulbs they vary somewhat in form and in bud—I notice some quite spherical, while others approach the long dainty form of *G. nivalis*, though in all cases very much larger.

One cannot have too many Snowdrops. Either in the borders, in the grass, or for naturalizing they are never out of place and never too abundant, and as the heralds of spring one welcomes them year after year with increasing interest. White flowers are never very showy in the garden, and while *G. nivalis* is a gem, *G. Elwesi* is so much larger (yet without a trace of coarseness) that it should always be planted in preference where the greatest effect is desired. These bulbs have been collected in such quantities that there is no reason why the dealers should not reduce the price and give every one a chance to plant them largely.

Elizabeth, N. J. *J. N. Gerard.*

Iris Bakeriana came into bloom in the open border on the 23d of February. This beautiful little Iris, with its blue standards and tigered falls, has been several times described in the columns of GARDEN AND FOREST, but its perfect hardiness and natural season of flowering in this latitude do not seem to have been noted. Planted in August, 1890, in a group with several others of the type of *I. reticulata*, this Iris (as well as the others) has been entirely without protection. The garden was continuously frozen from December 1st till some time early in January, and part of this time the bed had a slight covering of snow. Shortly after the change to mild weather the foliage commenced to spear up, and has not been damaged by any of the constant vagaries of the temperature. When showing color a pane of glass was fastened over blooms to protect them from moisture, and at this writing it is doing duty as a snow-shed. One hesitates to speak confidently of any plant on a single test, but, judging from the trial of this Iris during the rather hard winter just past, I think there can be little doubt of its perfect hardiness.

After some experience with *I. reticulata*, however, I am inclined to make the reservation that, as with most naturally early-blooming plants, care should be taken in selecting a suitable location. Snowdrops, Squills and some Anemones may be planted anywhere, as the most trying weather affects them little, if at all; but it seems better to plant such things as these little Irises in a position where they will not start much before their natural season even if the weather should happen to be mild earlier. A good position, I find, is on a border which is slightly shaded from the winter sun by a low picket-fence till late in January. In such a location the earth remains, as a rule, continuously frozen till late in the winter, and when the sun rises to soften the bed the plants are ready to spring into bloom with little danger to fear from sudden changes. But, aside from the interest of flowering these little gems in the open ground, perhaps, until one has some surplus stock, more enjoyment could be had from them if planted in a cold-house, where one could study their dainty beauty with no fear of pneumonia.

Elizabeth, N. J. *J. N. G.*

Phalænopsis Stuartiana.—In the gardens of Mr. H. H. Hunnewell, at Wellesley, Massachusetts, there are several plants of this species now in flower, one of them having an arching scape thirty-one inches long, and bearing fifty-eight flowers. It has five leaves about twelve inches long and three inches across. Some five years ago I cut from the root of one of these plants a piece on which two small leaves were growing, and, placing it carefully in a small saucer with four or five bits of potshreds with charcoal and sphagnum, it has now grown into the plant above described. It was permitted to flower for the first time last year; the scape then had nineteen flowers.

South Natick, Mass. *F. Gould.*

Correspondence.

Orchids at North Easton, Massachusetts.

To the Editor of GARDEN AND FOREST:

Sir.—At the gardens of F. L. Ames, Esq., the cool Orchid-houses are particularly gay, even thus early in the season. During a recent visit I noted in particular some exceptionally good varieties of *Lælia anceps*, among them a form of Virginalis called Alba, which is very nearly pure white, there being only a faint yellow blotch in the throat. The variety Williamsii has very large white flowers, with a yellow blotch in the throat, and violet-colored lines radiating therefrom. Sanderiana is often confounded with this plant, but its flowers are smaller, and the throat and tip of the labellum are shaded with violet-purple, with an intermediate bar of white. The whole flower of the variety Winniana is of a deep violet color, the lip being a shade darker than the sepals and petals, while Percivaliana is the very opposite of this, being a very light mauve.

It is still rather early for Dendrobiums, but some rare and beautiful specimens are in flower. In comparison with the flowers of *D. nobile*, those of its variety Elegans are more regular. The sepals and petals and lower part of the labellum are a soft creamy white, in striking contrast with the deep wine color of the interior of the labellum. The variety Nobilius of the same species is a most striking one. The entire flower is a deep maroon-purple, excepting only a small part of the lip. *D. infundibulum*, var. *Jamesianum*, is noticeable for the large size of its flowers, the purity of its white sepals and petals, and its deep yellow tubular throat. *D. Schneiderianum* (*D. Findlayanum* × *aureum*) is the most beautiful of the many hybrids now in bloom. The lobes of the labellum reflex gracefully, with chocolate and orange markings in the throat. The sepals and petals are pale pink, the latter wavy. In the size and color of its flowers and slight fragrance it resembles the seed parent, *D. aureum*, but in length of pedicels, which gives the plant additional grace, it inherits the good qualities of its pollen parent. This is a well-bloomed specimen, bearing forty-five flowers on two stems. *D. micans* (*D. Wardianum* × *lituiflorum*) is another handsome hybrid, in which the flowers are more nearly like those of *D. Wardianum* in shape, the trumpet-shaped labellum peculiar to the seed parent being very slightly developed. In reference to the variety of *D. Wardianum* known as Schrœderi, Mr. Robinson, the head-gardener of the establishment, aptly says that it bears to the type the same relation that the variety Nobilius does to *D. nobile*.

A remarkable specimen of *Vanda cærulea* is now to be seen here. The flowers are over four inches in diameter. The coloring of the petals and labellum is a deep blue; the sepals are lighter, with a still lighter, nearly white, marbling over the whole flower. *Cattleya Trianæ*, var. *Leeana*, is a portion of the original plant. In the size of its flowers it is a monster, some of them measuring eight inches across the petals, with a proportionately large labellum. The petals are lilac-mauve; the lip deep mauve; edges shading lighter; throat with yellow markings. *Cattleya* (*Lælia*) *Exoniensis* is a rare and beautiful hybrid, probably between *Cattleya Mossiæ* and *Lælia purpurata*, somewhat intermediate in character between these plants.

The very select collection of Cypripediums here contains some handsome specimens of many new and rare species, varieties and hybrids. *C. Morganiæ* (*C. superbiens* × *Stonei*) is conspicuous for the sulphur-green petals, with bronzy purple blotchings and ciliated margins. Its general habit is that of *C. Stonei*, with a pouch like that of *C. superbiens*. The fine specimen here now bears three scapes with ten flowers, and as recently as last August it carried twelve flowers on three scapes, and therefore it may be rated as a pretty free bloomer. *C. Mastersii* is a new species. The scape is erect, sixteen inches long, and hairy; the petals deep bronze veined with violet-purple, and pouch bronzy purple. *C. insigne Chantini* (Philbrick's variety) is, without doubt, the handsomest of the varieties of this fine species. It has a deep, arching, dorsal sepal, with reflexed margins. The white nearly covers the whole, and the violet punctation is very delicate. This is sometimes confounded with the varieties Maulei and Punctatum-violaceum, both inferior kinds, with a flat dorsal sepal. *C. Godseffianum* (*C. hirsutissimum* × *Boxallii*), now blooming for the first time, is of very recent origin. The centre of the dorsal sepal is a black bronze on a yellowish green ground. Petals large, wavy at the base, the upper part reddish purple, and the lower sulphur-yellow, with dark spots. *C. Leeanum superbiens* (*C. insigne* × *Spicerianum*) has a dorsal sepal not unlike that of the variety Chantini, but it is larger and almost wholly white, with violet punctation extending across the lower half and continued up the median line to the tip. *C. cardinale* (*C. Sedeni* × *Schlimii*) is a very handsome and almost continuous blooming hybrid in the way of *C. Sedeni*, but brighter; the pouch is more round and the petals are not twisted.

The new and rare *Odontoglossum Harryana* is now in bloom. It is probably the handsomest and most distinct of all the bronze-flowered Odontoglots. The sepals and petals are bronze, with clear yellow tips; base of labellum yellow and purple, with white lines and white tip.

Masdevallias were represented by many quaint and beautiful species and varieties. The *M. Chimæra* group, which have a strange fascination for many people, are here in full force. *M. Roezlii* almost black; *M. Winnianum* purple; *M. rubra*; *M. aurea*; *M. Veitchiana*, the ground color of which is orange-scarlet, with the violet hairs suffusing three-fourths of the surface, giving it a peculiarly brilliant hue; *M. ignea* with its varieties, Rubra and Aurantiaca; *M. Lindeni* and *M. Harryana*, conspicuous for violet shades, and *M. Tovariensis* are all represented by fine specimens. *Plurothallus Roezlii* is a curious novelty, with plum-colored flowers. Fine spikes of *Oncidium splendidum*, effectively placed, with the lovely pure white form of *Lycaste Skinneri*, bring my list to a close.

Wellesley, Mass. *H. G.*

Wanted, a Tract on Forestry.

To the Editor of Garden and Forest:

Sir.—The necessity of forestry reform is admitted by all intelligent people who take time to examine the question, but no reform can make much headway until the people at large become convinced of its necessity. The prime need, then, in every such cause is to instruct them as quickly as possible in that which so greatly concerns their welfare.

The two great avenues to the human mind are through the eye and the ear, and of these the first is, no doubt, the most important. That which we see makes, on the whole, the greatest impression. Such object-lessons, therefore, as that contemplated by the Adirondack League Club, referred to in your issue of February 18th, will, of course, be a vast help in forming a healthy public opinion concerning the management of our national forests. The fine example of the city of Lynn, which is now engaged in acquiring a vast and varied tract of adjacent woodland, embracing some 1,400 acres, to be held as a public forest and park for the use of the people forever, is another splendid object-lesson; the enterprise of the little village of Freedonia, New York, which has had the wit to seize the park idea by the right handle and forestall the future by boldly laying out two parks in the very heart of the town. These and other similar examples help along the causes with which they may severally be classified far more rapidly than can the very best of preaching. May such tangible teaching increase.

Yet there is a large and important work to be accomplished through the "foolishness of preaching." The press has done and is doing much. Still it occurs to me that there is need of, or at least room for, special work through such tracts as that one which assisted in the great reboisement of certain districts of France. There, the forests having disappeared through heedless cutting, and the turf been gradually destroyed by the sharp hoofs and the hungry gnawing of the flocks, great and increasing damage from floods began to overwhelm the valleys. To reclothe the heights and restore the equilibrium was found to be impossible until the people—the peasantry who had votes—had been won over. A prize was offered for the best short work adapted to teaching them these lessons, the little book "Studies of Master Peter" being the successful competitor. Some similar work, all the better if shorter, which could be widely disseminated among our rural populations would, I am confident, accomplish much toward producing a right popular view of the vast forest-interests of our land. Who will write one?

Dorchester, Mass. *S.*

[Mr. B. E. Fernow, Chief of the Forestry Department at Washington, has already written some leaflets for general distribution, but we cannot have too many of them nor have them prepared from too many points of view.—Ed.]

A Hand-book of Plants.

To the Editor of Garden and Forest:

Sir.—Can you refer me to some book which contains a description of all the plants in ordinary cultivation? I have examined a work in four volumes which seems to give the information I wish, but it is too expensive and cumbersome for my purpose.

Tarrytown, N. Y. *E. J.*

[Perhaps the best book for such a purpose is the "Hand-book of Plants" by Peter Henderson. The new edition, which was published something like a year ago, is practically a new book, not only because it includes such species and varieties of plants as have been introduced since the first edition was published, but because of the instructions given for the cultivation of various kinds of fruits and garden plants. Of course it is not so full as larger dictionaries like Nicholson's, but it has the advantage of being prepared expressly for American readers, and it will be found as complete as one ought reasonably to expect a book of such a size to be, and much more accurate than manuals of garden plants and practice usually are.—Ed.]

Primula obconica.

To the Editor of Garden and Forest:

Sir.—Ever since the first reports of the poisonous character of *Primula obconica* were published in your journal I have been examining and experimenting with it at times. In so far as structural features are concerned there is little to add to the excellent account by Dr. Thurber (vol. iii., p. 104). All parts of the plant are covered more or less densely with glandular hairs. The secretion is not so abundant at any time as to be viscid, and there is an entire absence of silicified hairs, which he suggests as a possible cause of the injury. There is nothing about this species which is widely different from *P. Sinensis* and *P. veris*, two old plants of gardeners, against which not a breath of suspicion has ever been raised. Figures of the cuticle made under the microscope show but slight differences in the length and profusion of hairs only. Otherwise one figure would stand for all three species.

Although I am moderately subject to plant-poisoning, all trials with *P. obconica* have given negative results, and I know of no one who has suffered, although several here have been frequently exposed.

Without calling in question the accuracy of reported cases, may we not put this Primrose into the list of plants poisonous, if at all, only to such persons as are extremely sensitive, and hence not necessary to be excluded from cultivation?

State College, Pa. *W. A. Buckhout.*

[It was nearly three years ago—that is, in the issue of Garden and Forest for May 3d, 1888—that Dr. James C.

White, of Boston, suggested *Primula obconica* as the probable cause of an inflammation of the skin of the hands and face of persons who had been handling it. In a later number he gave evidence to show that his original suspicion was probably correct. Since that time experience has abundantly established the fact that many persons are subject to an irritation of the skin, more or less severe, from contact with this Primrose.—ED.]

The Owl and the Sparrow.

To the Editor of GARDEN AND FOREST:

Sir.—I am glad to see criticism of M. Naudin's proposal to send us an owl for the discouragement of the English sparrow and the possible slaughter of our native sparrows, wrens, bluebirds, yellow-birds and other insectivorous songsters. Allow me to add an appeal to those school-boys and others who are enthusiastic in collecting birds' eggs. A great deal more knowledge of birds and their ways can be gained by examining the nest occasionally without touching it or the eggs, and by quietly watching the old birds at their work; and by this method of study the unpleasant feeling which comes over one after robbing a bird's nest will be avoided.

Washington. *H. B. A.*

Recent Publications.

Among a number of interesting articles recently published by Mr. John Addington Symonds in a book called "Essays Speculative and Suggestive," are two which should have especial attraction for our readers.

Even a slight acquaintance with the author's previous works would justify the prediction that in the chapter called "Landscape" the subject would not be treated from the most obvious point of view. No one will be surprised to find that it is not an essay on landscape in itself, but on the way in which a feeling for natural beauty has developed in mankind, as shown by the art and the literature of successive periods. "It is an error," says Mr. Symonds, "to believe that the ancients were insensible to the charm and beauty of external nature. Much has been written about their attitude toward landscape and the parsimony of picturesque description in their poetry. Yet sufficient stress is rarely laid upon the difference between the Greeks and the Romans in this matter. Nor has it been made clear enough that classical literature in its later stages exhibits more of what we may call the modern feeling than we find in Homer and the Attic writers." This position is substantially the same as that which was taken by one of our contributors in the series of articles we printed last year on the "History of Gardening Art." However, there are some points of dissimilarity. The difference between the Greeks and the Romans in their feeling for nature was not then explained as Mr. Symonds explains it. But, on the other hand, Mr. Symonds does not dwell upon the fact, then referred to, that descriptive writing of any kind is almost absent from Greek literature. We think that the cogency of the statements in the beginning of his chapter would have been increased had he shown that, as the Greeks, despite the unquestionable strength and acuteness of their feeling for art, have left us no real descriptions of works of art, so it is foolish to argue, from the paucity of their descriptions of natural scenes, that they had no true feeling for their beauty. But nothing could be more clear and charming than the way in which he illustrates that abiding anthropological instinct of the Greek mind, which, leading it to personify all natural phenomena and forces, hardly left a place in literature or in art for the painting of purely natural scenes; and his account of the development of a different frame of mind in the later Latin poets is, in its scholarly quality, combined with its lightness of touch, a passage such as no one else could have written. Equally interesting is his exposition of the reasons why, when Christianity had banished the old delight in terrestrial things, together with the old vast company of imagined beings inhabiting nature, "both literature and the plastic arts decayed. Classical polytheism," he continues, "interpolated a multitude of ideal personalities between the mind and nature. All these were swept away. The soul was left face to face with God." The material world was evil, and there was nothing left but "infinity and fact. What would happen should theology relax her grasp upon the intellect and men once more begin to gaze around with curious delight on their terrestrial dwelling-place?"

It was in the time of the Renaissance, Mr. Symonds believes, that "the intellect of man came painfully and gladly to new life through the discovery of itself and nature." The Latin songs of the thirteenth century, "in so far as these touch nature, reveal a genial thawing of the spirit. They dwell on the charm of spring-time in the country and connect the freedom of the open air with pleasures of the senses. Classical literature is at work as a form-giving influence. The German lyrics of the Minnesingers, the Provençal lyrics of the Troubadours, the Celtic romances of Arthur and his Knights, when these touch nature are in like manner vernal. The magic of the May pervades them; the mystery of the woodlands enfolds them. They are the utterances of generations for whom life has revived." Then comes Dante with his keen feeling for natural beauty, and "contemporaneously with Dante—though Dante hardly shared this movement—there began what is known as the Revival of Learning: that resuscitation of classical literature and art which exercised so potent an influence over the mind of Europe." Inspired by classic example, poets and painters then began to express more plainly a love for nature; but it always was after the classic fashion, as a background for man and his acts, until the very close of the Renaissance period when five great painters gave landscape independent life and importance. These, says Mr. Symonds, were Rubens, Claude Lorraine, the two Poussins and Salvator Rosa; they were the first who "emancipated landscape from its traditional dependence upon human motives and proved that Nature in herself is worthy of our sympathy and admiration." With and after them came the great company of Dutch landscape painters, while "in literature classic standards of taste continued to prevail" until science brought her quota of influence, and, in our own century, poets took the same attitude toward nature that painters had begun to take in the seventeenth century.

It will be seen, even from this brief summary, that Mr. Symonds does not adhere to the usual belief that the modern love of nature is an inheritance from Teutonic ancestors; that the difference which, although it has been exaggerated, does really exist between the ancient world and our own in this respect is a difference in blood, in natural, instinctive habits of mind. He says, indeed, quite plainly, that when the Scandinavians and Teutons were Christianized and absorbed into the fellowship of nations, they "brought with them nothing which could constitute a new condition for the sense of natural beauty. Like the Greeks, they looked at the world from the standpoint of mythology. The cosmic forces were personified in their religous legends as ideal men and women. Norse poetry was ill adapted to fostering that sympathy with nature which had begun to germinate in the latter stages of Græco-Roman civilization." Moreover, he adds, "such as it was, the dominant civilizing energy, that of the Latin Church, laid it under strict interdict." There is no space here to give the reasons why we must dissent from this belief and fall in with the more commonly accepted one which regards the Teutonic mind as more susceptible to the influence of nature, simply and purely as nature, than the Greek or Latin mind. But we think that Mr. Symonds unconsciously shows this very fact when he cites the songs of the Minnesingers and the Celtic romances as exhibiting a true and tender feeling for nature. Undoubtedly, the influence of the classic world was felt in northern Europe before the time which we are accustomed to call the "dawn of the Renaissance"; but neither these poets, nor even Dante, can be said to have been moulded, even if they were touched by it. That there was a distinctively Teutonic influence at work in literature and art all through the middle ages, and that it affected even non-Teutonic nations, seems to us a clearly proved fact; and as clearly proved seems the fact that it meant a new and stronger feeling for natural beauty simply as such. To what, we wonder, would Mr. Symonds attribute the development of architectural decoration from the classic conventionalism of Romanesque times into the often directly imitative, wholly realistic types of the end of the thirteenth and of the fourteenth century?

The second chapter to which we have referred is called "The Pathos of the Rose in Poetry," and again it recalls something that was recently written in GARDEN AND FOREST. This time it is the whimsical complaint of Alphonse Karr, cited in an article about him (vol. iii., p. 522), that the Greeks had said one or two pretty things about the Rose, the Romans had added one or two more, and then the world had gone on repeating them over and over until they had become worse than commonplace. Mr. Symonds is not whimsical, and he does not complain of this repetition of ideas or say that it has resulted in commonplaces. He simply shows, in a very delightful way, how two classic poems, one by Catullus and one by Ausonius, have been re-echoed in later days and in different tongues. To quote from this essay would be like plucking off

a couple of petals to show the quality of a Rose, so we leave it to such of our readers as may be fortunate enough to chance upon Mr. Symonds' attractive book.

Notes.

According to the *Economiste Français* about 862,700 tons of coffee are annually produced in different parts of the world, more than half the amount being credited to Brazil.

Pomona is pronounced by Dr. Aldrich, of Ohio, a good Raspberry for the home garden, although the fruit is not firm enough for shipping. The plant seems hardy, and it is productive of large and fine-looking berries of excellent quality.

In an article in the *American Garden* it is stated that Mr. Thomas R. Ballantine, of Norfolk, Virginia, raises 125 acres of Spinach a year, the sowing of which requires two and a half tons of seed, and from which he harvests some 25,000 barrels. Mr. Ballantine grows the Savoy Spinach entirely.

Mr. Edwin Lonsdale, in the *American Florist*, calls attention to the fact that Carnations have received special attention by the Pennsylvania Horticultural Society, which offers premiums for groups of twenty-five varieties in special colors. These premiums are offered for competition both at the spring show, which opens on March 17th, and at the Chrysanthemum show in November next. Premiums are also offered for the best seedling Carnations.

Some time ago Mr. W. E. Endicott stated in this journal that he had hybridized the white form of *Freesia refracta* with *Tritonia crocata*, and the resulting plants bore flowers which were Freesias pure and simple, and yet the Tritonia was the seed parent. Very naturally, such a result has excited inquiry, to which Mr. Endicott responds that he took great pains with the experiment, and is perfectly certain of the fact. He adds that in his greenhouse the Freesia has never set seed.

The League of American Wheelmen has offered $100 in prizes for photographs which can be used to illustrate the unfitness of our present public roads as highways. Some suggestions for subjects are the following: A farmer's team and wagon hub-deep and knee-deep in a muddy road; views of rough and rutty roads; broken vehicles caused by rough roads or steep grades; smooth, hard-surfaced roads with teams hauling loads over them. These object-lessons ought to prove effective aids in the campaign against bad roads.

The rare and showy South African Groundsel, *Senecio petasites*, lately noticed in these columns, has been blooming for some time in the greenhouses of B. P. Cheney, Esq., Dover, Massachusetts. The stems are herbaceous, about three feet high, terminated with a broad umbellate panicle of bright yellow flower-heads. To those who tire of Cinerarias, Cyclamens, Calceolarias and the generally grown winter decorative plants, this is a welcome introduction. It may be propagated either by seeds or cuttings, which develop at the base of the stems.

The Committee on Nomenclature of the Society of American Florists has named sub-committees, to each of which is to be referred questions as to the names of a single plant or class of plants. The following are the chairmen of the several sub-committees: John N. May, Roses; Edwin Lonsdale, Carnations; John Thorpe, Chrysanthemums; E. G. Hill, Bedding Plants; Charles D. Ball, Palms and Ferns; Robert Craig, Miscellaneous Greenhouse Plants; Ernest Asmus, Bulbous Plants; William R. Smith, Hardy Plants. William Falconer, Glen Cove, New York, is General Chairman.

A late bulletin from the New Jersey Experiment Station aims to acquaint the people of that state with the true character of the Black Knot of Plum and Cherry-trees and to stimulate united action for the suppression of the disease, which has practically driven two of our best orchard fruits out of cultivation in many parts of the country. If it is proper to pass laws compelling land-owners to prevent noxious weeds from going to seed on their premises, why not compel owners of trees infected with this fungus to cut off and destroy the diseased branches? The spores of this fatal fungus are surely as much to be dreaded as are the seeds of Canada Thistle.

Last year Professor Roberts, of Cornell University, removed the tassels from every alternate row in a plot which contained forty-eight rows of Indian Corn. The tassels were cut as soon as they could be seen and before they had produced any pollen. In no single case did a row upon which the tassels were left produce nearly as much as the rows on either side of it from which the tassels had been removed. In the aggregate, the number of good ears in the rows of emasculated plants was 2,338, as against 1,551 good ears on the rows where the tassels had been left, while in the former case the weight of merchantable corn was 1,078 pounds, and in the latter 710 pounds—that is, both in the number of ears and in the weight of the corn, the advantage was nearly fifty per cent. in favor of the rows where the tassels had been removed.

In the course of a lecture on "The Geographical Distribution of Plants," recently delivered before the Massachusetts Horticultural Society, Mr. H. F. Ganong, instructor in botany at Harvard University, said: "Man's influence upon the plant kingdom has been far less than it appears at first sight, and it is nearly uniformly unfavorable. The carrying of plants from place to place includes for the most part forms cultivated for food or for ornament, and the majority of them, if left to themselves in their new homes, would soon be exterminated, and hence produce no lasting effect upon plant distribution. In fact, the cases in which man has produced any considerable effect upon the vegetation or flora of a region are extremely few, and the effect is nearly always destructive. The stumps where once a forest stood speak most forcibly of man's power to destroy."

A bill to create the office of Forest Commissioner has been introduced in the Pennsylvania House of Representatives. The officer, to be appointed by the Governor, is to have practical knowledge of forestry, and by the aid of wardens employed by him he is to investigate the condition of forest-lands and have charge of those belonging to the state. He is to enforce the laws which provide punishment for the willful firing of forests, and he is to protect forests from cattle and illegal depredations, and to report annually the extent of damage by fire, cattle, etc. He is to give free information to those who ask for it as to the care of woodlands and the starting of new ones, to gather statistics of forest-products, and to post throughout the state rules for preventing and suppressing fires. The bill is approved by the Pennsylvania State Forestry Association, which is circulating petitions for its enactment, and sending out with these petitions a leaflet in which the reasons for reform in forest-policy are tersely set forth.

An article on "Dates," recently published in the *Illustrirte Gartenzeitung*, of Vienna, says that in north Africa the Date-palm is propagated by offsets, which are separated as they root and afterward planted out on the same spot. The young tree begins to bear blossoms in its fifth or sixth year, but yields fruit in no considerable quantity until a couple of seasons later, and is not in full bearing before the age of ten or twelve years. As the male and female blossoms are borne by different trees, man's help is needed to secure a crop. Hardly any but female trees are cultivated—a single male specimen serving to fructify hundreds of females. When the blooming season arrives—in February or March—and the great broad spathe of the pistillate tree unfolds, the Arab takes a bit of the staminate inflorescence, wraps it in a corner of his burnos, climbs the female tree by the aid of the step-like projections left by the leaves of its earlier years along the trunk, and ties the fragment carefully to the middle of the pistillate spathe. This is done when open flowers are first seen, and then the tree is watched until the blooming season is over, so that, as new blossoms appear, they, too, may be helped to develop fruit, the ones already treated being easily distinguished by the cords used in the tying process. Good judgment must, however, be exercised, especially in the most favorable years, for, if too many flower-clusters are encouraged to develop, the quality of the fruit will be injured. If the owner of a female tree or orchard does not possess a male specimen, he may buy the inflorescence he needs in the market-place, where it sells at a franc or a franc and a half. The harvest begins in October or November, and the fruit is plucked before it is quite mature and allowed to ripen in store-houses, as the nocturnal cold would injure its flavor, the thermometer often sinking at night to zero Centigrade, while during the day it may rise as high as thirty degrees. "Date-bread" is made from the fresh fruit which, freed of the kernels, is compressed into a block so hard that it may be cut like a ham, other fruits, such as Pistachio-nuts and almonds, being often mixed with the dates. This bread is a very nourishing article of food, and very palatable when eaten with ordinary bread. Syrup called "date-honey" is also made by pressure from the fresh fruit; from this syrup a sort of brandy is distilled; and the kernels, when first roasted and then boiled, yield an agreeable drink that is called "Gusmado-coffee."

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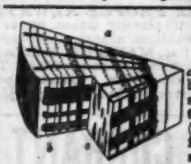

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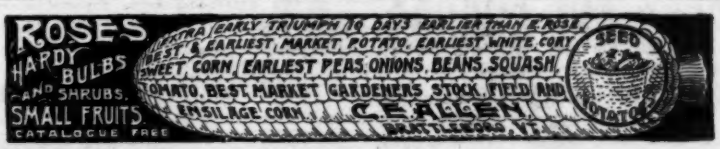

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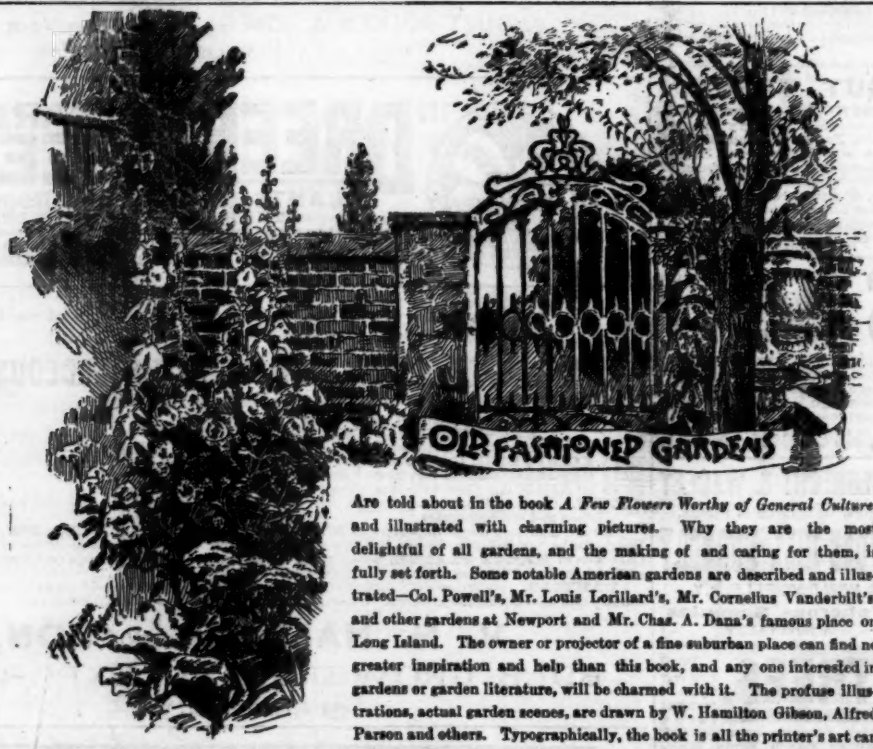

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